REPORT ON LABORATORY EVALUATION

OF THE

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER AND RADIATION LAB - NORTH

850 MARINA BAY PARKWAY
RICHMOND, CA 90804-6403

FOR COMPLIANCE WITH THE SAFE DRINKING WATER ACT

BY

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SIGNED: _____ DATE: _____
JACK BERGES

SIGNED: _____ DATE: _____
KEN HENDRIX

INTRODUCTION

On November 1-2, 2010, Jack Berges and Ken Hendrix, Region 9 Laboratory Certification Officers, conducted an evaluation of the State of California Department of Public Health (CDPH) Division of Drinking Water and Environmental Management's Drinking Water and Radiation Laboratory - North in Richmond, California, for the purpose of renewing certification of the laboratory for analyzing drinking water samples under the U.S. Environmental Protection Agency's Safe Drinking Water Program. Criteria for certification are set forth in the Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition ("The Manual", January 2005). The laboratory does not routinely analyze drinking water compliance samples, but does provide technical assistance to municipal and privately owned laboratories.

The examination of records, staff interviews and proficiency testing results indicate that the laboratory meets all of the requirements to receive drinking water laboratory certification for the listed methods and analytes. This report notes several deficiencies observed during the onsite that require future corrective action on the part of the laboratory. Although these deficiencies are judged not serious enough to affect the laboratory's certification status, the laboratory should take steps to correct the deficiencies through the implementation of a corrective action plan. The plan must include the action that the laboratory will implement to correct each deficiency and the time period required to accomplish that corrective action. The corrective action plan should be sent to Jack Berges, your certification officer. The report also includes some recommendations that would enhance the laboratory's procedures for performing the methods.

ORGANIZATION AND PERSONNEL

The laboratory has recently undergone staffing changes due to retirements. William Draper is currently acting as the branch chief with Laboratory Director responsibilities for the chemistry laboratories. Raimund Roehl supervises the Inorganic Section and Dadong Xu supervises the Organic Section. The state is currently undertaking a personnel search for a permanent Laboratory Director.

Laboratory analysts and staff have been working at SRL for a number of years. The analysts are very experienced in using drinking water instrumentation and methodology. Individual analysts record detailed analytical logbooks to document sample analysis.

Following is a listing of the personnel interviewed and their assigned areas of responsibility:

William Draper	Acting Laboratory Director
Dadong Xu	Supervisor, Organic Chemistry Section
Raimund Roehl	Supervisor, Inorganic Chemistry Section
Donald Wijekoon	QA Officer
Mario Estrada	EPA 504.1, EPA 505, EPA 507, EPA 508, EPA 508A, EPA 515.4, EPA 531.1, EPA 547
Jagdev Dhoot	EPA 549.2, EPA 525.2, EPA 548.1
John Remoy	EPA 515.4, EPA 552.3, EPA 524.2
Tuan Nguyen	EPA 200.8, EPA 200.7, EPA 200.9
Jian Yao	EPA 300.1, EPA 245.1, Quickchem 10-204-00-1-X

LABORATORY FACILITIES, EQUIPMENT AND INSTRUMENTATION

The general laboratory facilities encompass multiple rooms over several floors of the CDPH Richmond campus building. The rooms allow sufficient space for future analytical expansion and are more than adequate for the analysis of compliance samples. Security measures are in place to ensure the integrity of the samples is not compromised. The facilities are clean and well maintained. The instrumentation is in good repair and maintenance is documented in logbooks.

- One balance used for HPLC analyses had no record of daily weight verification. Each day the balances are used, verification should be performed. The verification consists of a check of a reference mass at approximately the same nominal mass to be determined. Verifications should be done each weighing session unless it can be shown that fluctuations in the environment do not affect the calibration. (The Manual, Chapter IV, Section 7.1.3)
- Several instances were discovered where thermometers had no documentation that they had been verified against a standard thermometer. Thermometers need to be traceable to NIST calibration and verified at least annually. (The Manual, Chapter IV, Section 7.1.5)

GENERAL LABORATORY PRACTICES AND ANALYTICAL METHODS

For the drinking water methods, the laboratory primarily analyzes proficiency testing samples from a commercial PT vendor. Current copies of the approved reference methods are available and analysts are familiar with them. Analysts maintain familiarity with maximum contaminant levels (MCLs), review results for values above the MCLs, and know what action to take in the event MCLs are exceeded. Deviations from the approved methods were found.

Laboratory analysts had standard operating procedures (SOPs) available for the analyses performed in their offices and at the workstations. The laboratory SOPs are consistent with the approved drinking water analytical methods.

Specific Method Comments:

- EPA Method 552.3, Haloacetic Acids: The Lab Quality Manual did not list a requirement for preserving samples using ammonium chloride. Use of this preservative is required by the method. (Method 552.3, Section 8.1.2)

- EPA Method 504.1, EDB and DBCP: The Lab should analyze a trihalomethane standard to verify that there is no interference with the EDB from dibromochloromethane, a common disinfection byproduct. (Method 504.1, Section 4.4)

- EPA Method 300.1, Inorganic Anions: The Lab is not currently adding a surrogate compound when analyzing chlorite and bromate by Part B of the method. The method requires that dichloroacetate be added as a surrogate analyte. (Method 300.1, Section 9.5)

SAMPLE COLLECTION, HANDLING AND PRESERVATION

When the laboratory receives samples for analysis, samplers designated by the State Drinking Water Program collect samples. The laboratory provides appropriate sample containers, preservatives, and chain of custody forms. Upon receipt at the laboratory, the temperature and preservation of the samples is verified. Once logged in, the samples are stored in secure cold storage units that have temperatures monitored daily.

QUALITY ASSURANCE AND QUALITY CONTROL

The QA plan outlines the quality assurance and quality control procedures required for the approved EPA drinking water methods. Required quality control samples such as blanks, duplicates, matrix spikes, surrogates, method detection limit, and QC reference samples are run with drinking water samples as required.

Demonstrations of capability are documented for the analyses for which the laboratory sought certification and the analysts who perform those analyses. Detection limit and precision and accuracy studies are regularly updated.

RECORDS AND DATA REPORTING

Records of drinking water results are reported and maintained in accordance with federal regulations. Records are maintained on site for the prescribed time periods. The records that were examined indicated compliance with the required methods and the laboratory's SOPs.

ACTION RESPONSE TO LABORATORY RESULTS

Results are reported to the Drinking Water Program. The laboratory has a process in place to request resampling of any suspect results and report samples that exceed the MCLs.

CERTIFICATION STATUS

Based on the onsite evaluation and results of proficiency testing samples, the assessors recommend that certification be granted for the listed regulated contaminants by the methods cited for a period of three years:

Inorganic Method

EPA 200.7	sodium
EPA 200.8	antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, selenium and thallium
EPA 200.9	antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium and thallium
EPA 245.1	mercury
EPA 300.1	fluoride, nitrite, nitrate, chlorite, bromate
Quickchem 10-204-00-1-X	cyanide

Organic Method

EPA 504.1	ethylene dibromide (EDB) and dibromochloropropane (DBCP)
EPA 524.2	benzene, carbon tetrachloride, chlorobenzene, p-dichlorobenzene, o-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroehtylene, trans-1,2-dichloroethylene, dichloromethane, 1,2-dichloropropane, ethyl benzene, styrene, tetrachloroethylene, toluene, 1,2,4-trichlorobenzene, 1,1,1,-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, vinyl chloride, xylenes (total), trihalomethanes (total)
EPA 508	chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, toxaphene, PCB (screen only)
EPA 508A	PCB as decachlorobiphenyl
EPA 515.3	2,4-D, pentachlorophenol, picloram, dinoseb, dalapon, and 2,4,5-TP (silvex)
EPA 525.2	benzo(a)pyrene, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, alachlor, atrazine, simazine
EPA 531.1	carbofuran and oxamyl
EPA 547	glyphosate
EPA 548.1	endothall
EPA 549.2	diquat
EPA 552.3	haloacetic acids (HAA-5)